

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Lehtonen et al. Conf.: 7510
Serial No.: 10/681,261 Group: 1764
Filed: October 9, 2003 Examiner: NGUYEN, Tam M.
For: PROCESS FOR THE MANUFACTURE OF A GASOLINE BLENDING COMPONENT

DECLARATION SUBMITTED UNDER 37 C.F.R. 1.132

Honorable Commissioner
of Patents and Trademarks
Washington, D.C. 20231

June 26, 2007

Sir:

I, Isto Heino EILOS, of Neste Jacobs Oy, Finland, do hereby declare the following:

I graduated from Helsinki University of Technology in 1982 with the degree of Master of Science (Chem.Eng.)

I have participated at various process investment and development projects at Neste Oyj during years 1982 to 2001, at Neste Chemicals years 1991 to 1996 and after that until now at Neste Jacobs, formerly Neste Engineering Oy, which was formerly a department of Fortum Oil and Gas Oy, formerly Neste Oyj. My current position is Senior Engineering Associate with Neste Jacobs Oy.

I am familiar with the contents of the above referenced patent application, as well as the current processes used for producing isooctane.

I have read and understood the subject matter of the Office Actions of May 21, 2007.

There are essential differences between the process disclosed in Stine '252 (US 5,847,252) and the process according to the present application.

The composition of the feedstock coming out of the oligomerization zone and going into the saturation/hydrogenation zone in Stine '252 is different from the composition of the presently claimed feedstock. Stine '252 teaches to use C7 and lighter components (composition given in the table on column 16 for line 87). In the Example of Stine '252 there is high amount of C4 hydrocarbons, nearly 80 mol-%. Together with the disclosed operation conditions of 530 °F (276 °C) and 485 psi (33 bar) the fluid is inevitably in gas phase as it is over the critical point of the composition.

The attached figure shows a phase diagram for the feedstock of the process according to the present application. In the phase diagram each of the curves represent the portion of liquid in a two-phase situation, below the lowest curve the phase is completely liquid and above the highest curve the phase is completely gas. The feed of the present application contains practically no C4 components, but there are mainly C8 and higher components. This is also evidenced in Example 3 of the present application, describing the feed to the hydrogenation containing 98.4 % of C8 and C12 olefins. Further, Table 1 provides results of analysis of the final product obtained in Example 1, containing C8, C12 and some C16 components and negligible amounts of other components. This provides evidence of the carbon number distribution of the feed because hydrogenation does not alter the carbon number.

The critical point of the feed is about 280 °C and 33 bar meaning that the critical point for the feed going into the saturation/hydrogenation zone in Stine '252 (the Example) is much lower. As the operation temperature in the process according to the present application, also shown in the examples, is much lower compared to the critical point, it is evident that there exists high amount of liquid in the reactor and the flow conditions are therefore totally different compared to Stine's conditions. All facts clearly point out that the intention of Stine '252 was to operate process in gas phase, which is not the case in the present application, where a high amount of liquid is present.

Further, in Stine '252, particularly at the reaction conditions of the example, the reaction mixture is more or less above the critical point, which means that there is not available liquid for wetting of the catalyst. In trickle-bed reactors it is essential that the catalyst is wetted by the liquid and the reaction takes place on the wetted catalyst. This is not the case in Stine '252 and thus the reactors in the hydrogenation zone in Stine '252 are not trickle-bed reactors.

As such, in my opinion, the instant invention is both novel and unobvious over the prior art cited by the Examiner.

The undersigned hereby declares that all statements made herein are based upon knowledge are true, and that all statements based upon information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: 26 JUNE 2007



Isto Eilos

